

WHAT IS CLAIMED IS:

1. A wireless communication system having at least one wireless communication apparatus and a wireless control apparatus wirelessly linked with said wireless communication apparatus, said system comprising:
- wireless-link establishing means for wirelessly establishing a link between said wireless control apparatus and said wireless communication apparatus;
  - incoming-call detecting means for detecting an incoming call to said wireless communication apparatus;
  - communication-end detecting means for detecting end of communication by said wireless communication apparatus;
  - maintaining means, responsive to detection of end of communication by said communication-end detecting means, for maintaining the wireless link for a period of time longer than that necessary to cut the wireless link established by said wireless-link establishing means; and
  - communication means for using the wireless link, which has been maintained by said maintaining means, when an incoming call is detected by said incoming-call detecting means.
2. The system according to claim 1, wherein when end of communication has been detected by said communication-end detecting means, the wireless link maintained by

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3. The system according to claim 1, wherein said communication means performs communication when  
5 detection of end of communication by said communication-  
end detecting means and detection of an incoming call by  
said incoming-call detecting means is performed by the  
same wireless communication apparatus.

wherein when a response is detected by said response detecting means, said communication-end  
15 detecting means detects end of communication of control information by a wireless communication apparatus other than the wireless communication apparatus that responded; and

5. The system according to claim 4, wherein said wireless control apparatus has recognition means for recognizing a wireless communication apparatus which performs voice communication and a wireless communication apparatus which performs communication of

data; and

said maintaining means maintains said wireless link in dependence upon the recognition made by said recognition means.

5 6. The system according to claim 4, wherein when end of communication of control information is detected by said communication-end detecting means, said maintaining means cuts the wireless link after a prescribed period of time.

10 7. The system according to claim 4, wherein said maintaining means maintains the wireless link until communication by said wireless communication apparatus that responded ends.

15 8. The system according to claim 1, wherein said maintaining means is capable of arbitrarily setting time during which the wireless link is maintained.

9. A wireless control apparatus wirelessly linked with at least one wireless communication apparatus, said system comprising:

20 wireless-link establishing means for wirelessly establishing a link with said wireless communication apparatus;

incoming-call detecting means for detecting an incoming call to said wireless communication apparatus;

25 communication-end detecting means for detecting end of communication by said wireless communication

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apparatus;

maintaining means, responsive to detection of end of communication by said communication-end detecting means, for maintaining the wireless link for a period of time longer than that necessary to cut the wireless link established by said wireless-link establishing means;

and

communication means for using the wireless link, which has been maintained by said maintaining means, when an incoming call is detected by said incoming-call detecting means.

10. The apparatus according to claim 9, wherein when end of communication has been detected by said communication-end detecting means, the wireless link maintained by said maintaining means is cut after a prescribed period of time.

11. The apparatus according to claim 9, wherein said communication means performs communication when detection of end of communication by said communication-end detecting means and detection of an incoming call by said incoming-call detecting means is performed by the same wireless communication apparatus.

12. The apparatus according to claim 9, wherein said wireless control apparatus has response detecting means for detecting a response by said wireless communication apparatus to an incoming call;

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wherein when a response is detected by said  
response detecting means, said communication-end  
detecting means detects end of communication of control  
information by a wireless communication apparatus other  
5 than the wireless communication apparatus that  
responded; and

said maintaining means maintains a wireless link of  
the wireless communication apparatus other than said  
wireless communication apparatus that responded.

10 13. The apparatus according to claim 12, wherein said  
wireless control apparatus has recognition means for  
recognizing a wireless communication apparatus which  
performs voice communication and a wireless  
communication apparatus which performs communication of  
15 data; and

said maintaining means maintains said wireless link  
in dependence upon the recognition made by said  
recognition means.

14. The apparatus according to claim 12, wherein when  
20 end of communication of control information is detected  
by said communication-end detecting means, said  
maintaining means cuts the wireless link after a  
prescribed period of time.

15. The apparatus according to claim 12, wherein said  
25 maintaining means maintains the wireless link until  
communication by said wireless communication apparatus

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that responded ends.

16. The apparatus according to claim 9, wherein said maintaining means is capable of arbitrarily setting time during which the wireless link is maintained.

5 17. A wireless communication system having at least one wireless communication apparatus and a wireless control apparatus wirelessly linked with said wireless communication apparatus, said system comprising:

10 wireless-link establishing means for wirelessly establishing a link between said wireless control apparatus and said wireless communication apparatus;

incoming-call detecting means for detecting an incoming call to said wireless communication apparatus when a wireless link has been established by said  
15 wireless-link establishing means;

communication-end discriminating means for discriminating end of communication by said wireless communication apparatus; and

20 control means for performing control in such a manner that communication responsive to an incoming call is started using said wireless link when the incoming call is detected by said incoming-call detecting means and end of communication is discriminated by said communication-end discriminating means.

25 18. The system according to claim 17, wherein when end of communication is discriminated by said communication-

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end detecting means, said wireless-link establishing means cuts the wireless link after a prescribed period of time.

19. A wireless control apparatus wirelessly linked with  
5 a wireless communication apparatus, comprising:

wireless-link establishing means for wirelessly establishing a link with said wireless communication apparatus;

incoming-call detecting means for detecting an  
10 incoming call to said wireless communication apparatus when a wireless link has been established by said wireless-link establishing means;

communication-end discriminating means for discriminating end of communication by said wireless  
15 communication apparatus; and

control means for performing control in such a manner that communication responsive to an incoming call is started using said wireless link when the incoming call is detected by said incoming-call detecting means  
20 and end of communication is discriminated by said communication-end discriminating means.

20. The apparatus according to claim 17, wherein when end of communication is discriminated by said communication-end detecting means, said wireless-link  
25 establishing means cuts the wireless link after a prescribed period of time.

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21. A wireless communication system having a plurality of wireless communication apparatus and a wireless control apparatus wirelessly linked with said wireless communication apparatus, said system comprising:

5        selecting means for selecting a wireless link that is to be cut from among established wireless links;

          commanding means for commanding cutting of a wireless link in dependence upon the selection made by said selecting means;

10        discriminating means for discriminating type of communication; and

          setting means for setting, in dependence upon the discrimination performed by said discriminating means, time from a command issued by said commanding means to  
15        cutting of the wireless link.

22. The system according to claim 21, wherein said discriminating means discriminates whether the type of communication is response to an incoming call to said wireless communication apparatus, abandonment of an  
20        incoming call from an originating side or origination of a call from said wireless communication apparatus; and

          said setting means sets a first time when said discriminating means discriminates that the type of communication is abandonment of the incoming call or  
25        origination of a call from said wireless communication apparatus, and sets a second time when said

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discriminating means discriminates that the type of communication is response to an incoming call.

23. The system according to claim 22, wherein the first time set by said setting means is shorter than the  
5 second time.

24. The system according to claim 21, wherein said discriminating means discriminates whether the type of communication is response to an incoming call to said wireless communication apparatus, abandonment of an  
10 incoming call from an originating side or origination of a call from said wireless communication apparatus; and

said setting means sets a time when said discriminating means discriminates that the type of communication is abandonment of the incoming call or  
15 origination of a call from said wireless communication apparatus, and sets no time when said discriminating means discriminates that the type of communication is response to an incoming call.

25. The system according to claim 21, wherein setting of time by said setting means can be performed  
20 arbitrarily.

26. A wireless control apparatus wirelessly linked with a plurality of wireless communication apparatus, comprising:

25 selecting means for selecting a wireless link that is to be cut from among established wireless links;

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commanding means for commanding cutting of a wireless link in dependence upon the selection made by said selecting means;

discriminating means for discriminating type of communication; and

setting means for setting, in dependence upon the discrimination performed by said discriminating means, time from a command issued by said commanding means to cutting of the wireless link.

27. The apparatus according to claim 26, wherein said discriminating means discriminates whether the type of communication is response to an incoming call to said wireless communication apparatus, abandonment of an incoming call from an originating side or origination of a call from said wireless communication apparatus; and

said setting means sets a first time when said discriminating means discriminates that the type of communication is abandonment of the incoming call or origination of a call from said wireless communication apparatus, and sets a second time when said discriminating means discriminates that the type of communication is response to an incoming call.

28. The apparatus according to claim 26, wherein said discriminating means discriminates whether the type of communication is response to an incoming call to said wireless communication apparatus, abandonment of an

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incoming call from an originating side or origination of  
a call from said wireless communication apparatus; and

5       said setting means sets a time when said  
discriminating means discriminates that the type of  
communication is abandonment of the incoming call or  
origination of a call from said wireless communication  
apparatus, and sets no time when said discriminating  
means discriminates that the type of communication is  
response to an incoming call.

10   29. A method of controlling a wireless communication  
system having at least one wireless communication  
apparatus and a wireless control apparatus wirelessly  
linked with said wireless communication apparatus, said  
system comprising:

15       a wireless-link establishing step of wirelessly  
establishing a link between said wireless control  
apparatus and said wireless communication apparatus;

20       a communication-end detecting step of detecting end  
of communication by said wireless communication  
apparatus;

25       a maintaining step, responsive to detection of end  
of communication at said communication-end detecting  
step, of maintaining the wireless link for a period of  
time longer than that necessary to cut the wireless link  
established at said wireless-link establishing step;

an incoming-call detecting step of detecting an

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incoming call to said wireless communication apparatus;  
and

a communication step of using the wireless link,  
which has been maintained at said maintaining step, when  
5 an incoming call is detected at said incoming-call  
detecting step.

30. The method according to claim 29, wherein said  
communication step performs communication when detection  
of end of communication at said communication-end  
10 detecting step and detection of an incoming call at said  
incoming-call detecting step is performed by the same  
wireless communication apparatus.

31. The method according to claim 29, further  
comprising a response detecting step of detecting a  
15 response by said wireless communication apparatus to an  
incoming call;

wherein when a response is detected at said  
response detecting step, said communication-end  
detecting step detects end of communication of control  
20 information by a wireless communication apparatus other  
than the wireless communication apparatus that  
responded; and

said maintaining step maintains a wireless link of  
the wireless communication apparatus other than said  
25 wireless communication apparatus that responded.

32. A method of controlling a wireless control

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apparatus wirelessly linked with at least one wireless communication apparatus, said method comprising:

5 a wireless-link establishing step of wirelessly establishing a link with said wireless communication apparatus;

a communication-end detecting step of detecting end of communication by said wireless communication apparatus;

10 a maintaining step, responsive to detection of end of communication at said communication-end detecting step, of maintaining the wireless link for a period of time longer than that necessary to cut the wireless link established at said wireless-link establishing step;

15 an incoming-call detecting step of detecting an incoming call to said wireless communication apparatus; and

20 a communication step of using the wireless link, which has been maintained at said maintaining step, when an incoming call is detected at said incoming-call detecting step.

33. The method according to claim 32, wherein said communication step performs communication when detection of end of communication at said communication-end detecting step and detection of an incoming call at said incoming-call detecting step is performed by the same  
25 wireless communication apparatus.

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34. The method according to claim 32, further comprising a response detecting step of detecting a response by said wireless communication apparatus to an incoming call;

5 wherein when a response is detected at said response detecting step, said communication-end detecting step detects end of communication of control information by a wireless communication apparatus other than the wireless communication apparatus that  
10 responded; and

said maintaining step maintains a wireless link of the wireless communication apparatus other than said wireless communication apparatus that responded.

35. A method of controlling a wireless communication  
15 system having a wireless communication apparatus and a wireless control apparatus wirelessly linked with said wireless communication apparatus, said system comprising:

a wireless-link establishing step of wirelessly  
20 establishing a link between said wireless control apparatus and said wireless communication apparatus;

an incoming-call detecting step of detecting an incoming call to said wireless communication apparatus when a wireless link has been established at said  
25 wireless-link establishing step;

a communication-end discriminating step of

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discriminating end of communication by said wireless communication apparatus; and

5 a control step of performing control in such a manner that communication responsive to an incoming call is started using said wireless link when the incoming call is detected at said incoming-call detecting step and end of communication is discriminated at said communication-end discriminating step.

10 36. The method according to claim 35, wherein the wireless link established at said wireless-link establishing step is cut a prescribed period of time after end of communication is discriminated at said communication-end detecting step.

15 37. A method of controlling a wireless control apparatus wirelessly linked with a wireless communication apparatus, comprising:

a wireless-link establishing step of wirelessly establishing a link with said wireless communication apparatus;

20 an incoming-call detecting step of detecting an incoming call to said wireless communication apparatus when a wireless link has been established at said wireless-link establishing step;

25 a communication-end discriminating step of discriminating end of communication by said wireless communication apparatus; and

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5 a control step of performing control in such a manner that communication responsive to an incoming call is started using said wireless link when the incoming call is detected at said incoming-call detecting step and end of communication is discriminated at said communication-end discriminating step.

10 38. The method according to claim 37, wherein the wireless link established at said wireless-link establishing step is cut a prescribed period of time after end of communication is discriminated at said communication-end detecting step.

15 39. A method of controlling a wireless communication system having a plurality of wireless communication apparatus and a wireless control apparatus wirelessly linked with said wireless communication apparatus, said method comprising:

a discriminating step of discriminating type of communication; and

20 a setting step of setting, in dependence upon the discrimination performed at said discriminating step, time to cutting of an established wireless link;

a selecting step of selecting a wireless link that is to be cut from among established wireless links; and

25 a commanding step of commanding cutting of a wireless link selected at said selecting step.

40. The method according to claim 39, wherein said

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discriminating step discriminates whether the type of communication is response to an incoming call to said wireless communication apparatus, abandonment of an incoming call from an originating side or origination of a call from said wireless communication apparatus; and

5 said setting step sets a first time when said discriminating step discriminates that the type of communication is abandonment of the incoming call or origination of a call from said wireless communication apparatus, and sets a second time, which is longer than said first time, when said discriminating step discriminates that the type of communication is response to an incoming call.

41. The method according to claim 39, wherein said discriminating step discriminates whether the type of communication is response to an incoming call to said wireless communication apparatus, abandonment of an incoming call from an originating side or origination of a call from said wireless communication apparatus; and

20 said setting step sets a time when said discriminating step discriminates that the type of communication is abandonment of the incoming call or origination of a call from said wireless communication apparatus, and sets no time when said discriminating step discriminates that the type of communication is response to an incoming call.

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42. A method of controlling a wireless control apparatus wirelessly linked with a plurality of wireless communication apparatus, said method comprising:

5 a discriminating step of discriminating type of communication; and

a setting step of setting, in dependence upon the discrimination performed at said discriminating step, time to cutting of an established wireless link;

10 a selecting step of selecting a wireless link that is to be cut from among established wireless links; and

a commanding step of commanding cutting of a wireless link selected at said selecting step.

43. The method according to claim 42, wherein said discriminating step discriminates whether the type of communication is response to an incoming call to said wireless communication apparatus, abandonment of an incoming call from an originating side or origination of a call from said wireless communication apparatus; and

15 said setting step sets a first time when said discriminating step discriminates that the type of communication is abandonment of the incoming call or origination of a call from said wireless communication apparatus, and sets a second time, which is longer than said first time, when said discriminating step  
20 discriminates that the type of communication is response to an incoming call.  
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44. The method according to claim 42, wherein said discriminating step discriminates whether the type of communication is response to an incoming call to said wireless communication apparatus, abandonment of an incoming call from an originating side or origination of a call from said wireless communication apparatus; and said setting step sets a time when said discriminating step discriminates that the type of communication is abandonment of the incoming call or origination of a call from said wireless communication apparatus, and sets no time when said discriminating step discriminates that the type of communication is response to an incoming call.

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